

## ABSTRACT OF THE DISCLOSURE

Apparatus and methods for three dimensional image reconstruction from data acquired in a positron emission tomograph (PET). This invention uses a parallel/pipelined architecture for processing the acquired data as it is acquired from the scanner. The asynchronously acquired data is synchronously stepped through the stages performing histogramming, normalization, transmission/attenuation, Mu image reconstruction, attenuation correction, rebinning, image reconstruction, scatter correction, and image display.